

WHAT IS CLAIMED IS:

1.           A method of extending the operational period of a chip tester of the type that includes a heat-exchanger which has an electric heater and a heat-sink that are joined together with a layer of an attach material; said  
5 method including the steps of:  
            testing chips in said chip tester in a manner that puts said heat-exchanger through multiple temperature changes where said layer stays in a solid state and where stress cracks are induced in said layer;  
10           subjecting said layer to a crack-healing temperature cycle in which said layer is melted at least partially and re-solidified; and thereafter,  
            repeating said testing step.

2. A method according to claim 1 wherein said crack-healing temperature cycle is performed while a spacer is in said heat-exchanger which remains solid and keeps the thickness of said layer constant.

3. A method according to claim 1 wherein said crack-healing temperature cycle is performed while said heat-exchanger is in said tester.

4. A method according to claim 1 wherein said crack-healing temperature cycle is performed after said heat-exchanger is removed from said tester.

5. A method according to claim 1 wherein said crack-healing temperature cycle includes the substep of sending an electric current to said electric heater with a magnitude and duration that causes said layer to melt at least partially.

6. A method according to claim 1 wherein said crack-healing temperature cycle includes the substep of transferring heat to said heat-exchanger from an external source, with a magnitude and duration that causes said layer to melt at least partially.

7. A method according to claim 1 wherein said crack-healing temperature cycle includes the substep of transferring heat to said heat-exchanger by passing a hot liquid through said heatsink, with a magnitude and duration that causes said layer to melt at least partially.

8. A method according to claim 1 wherein said heatsink is of a type that includes a passageway for carrying a liquid coolant, and said crack-healing temperature cycle includes the substep of preventing said coolant from moving through said passageway while said layer is melted at least partially.

9. A method according to claim 1 wherein said heatsink is of a type that includes a passageway for carrying a liquid coolant, and said crack-healing temperature cycle includes the substep of heating said coolant as it moves through said passageway while said layer is melted at least partially.

10. A method according to claim 1 wherein said crack-healing temperature cycle includes the substep of pressing against said electric heater with a member that simulates one of said chips in said testing step, while  
5 said layer is melted at least partially.

11. A method according to claim 1 wherein said crack-healing temperature cycle includes the substep of positioning said heater above said heatsink and having gravity force said heater towards said heatsink while  
5 said layer is melted at least partially.

12. A method according to claim 1 wherein said crack-healing temperature cycle includes the substep of pressing against said heater with a springy member while said layer is melted at least partially.

13. A method according to claim 1 wherein said crack-healing temperature cycle includes the substep of limiting lateral movement of said heater, relative to said heatsink, with a mechanical stop while said layer is  
5 melted at least partially.